PRINCE EDWARD ISLAND

ENERGY CORPORATION

ANNUAL REPORT

1985-86

BOARD OF DIRECTORS

Mr. Norman F. Stewart, Chairman
Mr. Don J. Gillis, Vice Chairman
Mr. G. Douglas Dennis, Secretary-Treasurer
Hon. J. Angus MacLean, P.C.
Mr. L. Raymond MacKinnon
Mr. Leo J. Walsh
Hon. Frederick L. Driscoll

The Honourable Allison Ellis
Minister, Department of Energy & Forestry
P.O. Box 2000
Charlottetown, P.E.I.
C1A 7N8

Dear Mr. Minister:

I have the honour to present to you the attached annual report of the Prince Edward Island Energy Corporation for the year ending March 31, 1986. This report has been prepared and is submitted in accordance with the Energy Corporation Act, Section 10 (1).

Respectfully submitted,

Norman F. Stewart
Chairman of the Board of Directors

1.0 INTRODUCTION

This is the seventh annual report of the P.E.I. Energy Corporation and covers the period April 1, 1985 — March 31, 1986. The Energy Corporation was established by the Energy Corporation Act which was proclaimed on December 9, 1978.

The objectives of the Energy Corporation are to develop and promote energy systems on an economic and efficient basis and to coordinate all government programs in the establishment and application of energy systems in the province.

The Corporation operates within the general framework of provincial energy policy which is the responsibility of the Minister of Energy & Forestry.

2.0 BOARD OF DIRECTORS

The members of the Board of Directors and their terms of office as of March 31, 1986 were as follows:

Norman F. Stewart, Chairman — 20 October, 1983 — 20 March, 1987
Don Gillis, Vice Chairman — 26 March, 1981 — 6 December, 1987
G. Douglas Dennis, Secretary-Treasurer — 9 November, 1981 — 6 December, 1987
Hon. J. Angus MacLean, P.C., 21 November, 1983 — 21 November, 1986
L. Raymond MacKinnon, 20 October, 1983 — 20 October, 1986
Leo J. Walsh, 20 October, 1983 — 20 October, 1986
Hon. Frederick L. Driscoll (Ex Officio) 28 October, 1982

3.0 STAFF

A.J. Hiscock resigned as General Manager of the Corporation on August 9, 1985 to take up a position with Environment Canada. The Board of the Corporation set up an Executive Search Committee consisting of Norman F. Stewart, G. Douglas Dennis, and the Hon. J. Angus MacLean. Following a review of applications, R. J. Brandon, a Charlottetown Consulting Engineer, was appointed General Manager by the Board. Dr. John te Raa was appointed Operations Manager.

4.0 ACTIVITIES

The collapse of oil prices from C$38.41 per barrel in November, 1985 to C$17.40 per barrel in March, 1986 meant a close re-examination of the projects that the Corporation was both involved in or was planning. However, the availability of capital funds from the federal Government under the Alternative Energy Demonstration Program meant that projects using local wood chip fuel were still economically viable. The Corporation developed a contract for wood fuel at a competitive price acting as a broker for several institutions using wood fuel. Following the startup in December 1985, of the wood boiler at the Prince Edward Home, a pilot district heating system using excess wood fired heat was initiated for thirteen Charlottetown buildings including three hotels and City Hall. The Energy from Waste Plant continued to operate well and is recognized nationally as a very

successful example of waste management technology. In 1985-86 the Corporation continued to explore the potential for district heating technology including a major study for the Town of Summerside. Details on the activities and projects which the Corporation has been involved in follow.

4.1 Energy from Waste Plant

The Energy from Waste Plant (EFW) consumed 26,800 metric tonnes of municipal waste in 1985-86 and sold 33,655,000 kg of steam to the Queen Elizabeth Hospital. This steam is estimated to have displaced 3.8 million litres of light fuel oil, worth over one million dollars.

Environment Canada released a report on the environmental assessment of the Plant following a comprehensive test program carried out under the National Incinerator Testing and Evaluation Program (NITEP) in 1985-86. A press release issued by Environment Canada on the test program stated:

"The Plant, in its third year of operating is a technical succcess and has provided a new source of energy for the Island and reduced the use of valuable land for landfilling of municipal solid waste."

Issues encountered during the year included concern regarding the disposal of dry cleaning fluids, such as perchloroethylene. Since the Plant cannot handle these fluids safely, they are not being accepted and the Department of Community & Cultural Affairs is working with the businesses concerned on alternative methods of disposal.

The revenue received from the sale of steam is linked to the contract price of light fuel oil to the Hospital Services Commission. Declining oil prices have forced a careful re-examination of the operating costs and revenue potential of the Plant. In October, 1985 the Corporation reduced the EFW Plant's operating budget for 1986-87 by $200,000 by delaying replacement of capital equipment such as loaders.

It also appears that revenue could be increased by appropriate changes in the operations of both the Energy from Waste Plant and the boiler room at the Queen Elizabeth Hospital. The Hospital annually uses about 450,000 litres of oil that might be replaced by refuse-derived steam. In March, 1985 the Corporation issued a request for proposals to examine the operational efficiency of the combined heating systems.

In March, 1986 Energy, Mines & Resources Canada offered the Corporation a grant of $158,181 towards the capital cost of a back pressure steam turbine that would provide the majority of the power required to operate the plant. The turbine should be installed early in 1987.

4.2 Renewable Energy Initiatives Program

This program, which was initiated in 1982, was continued in 1985-86. The program funds demonstration projects using energy systems that have not been proven in Prince Edward Island. Projects that received assistance under this program included:

Prefabricated Wood Boiler — La Coopérative Forestière
Wood Chip Burner — Glenwilliam Greenhouses
Wood Chip Drying Project — Intertech Ltd.
Jet Ice Project — Sherwood Sportsplex
District Heating Heat Exchangers — ELGE Ltd./Georgetown Shipyard

In addition to the projects above, the Renewable Energy Initiatives Program funded the salary of an Agricultural Engineer to work in the Department of Agriculture on Energy Conservation Projects in the agricultural community.

4.3 Bunbury-Southport Wind Turbine Project

A wind turbine was installed in March, 1984 as a joint project between the Corporation and the Bunbury-Southport Pollution Control Commission. The original 25 kW generator was determined by the manufacturer to be undersized for the turbine rotor in high winter winds and was replaced at no cost by a 40 kW generator. The new system was put in operation on November 12, 1985 and has operated without problems since that time. In the period November 12, 1985 — February 28, 1986 the unit produced 27,457 kWh of power and was generating 54% of the time. Due to the earlier problems, the contract between the Corporation and the Commission was extended to March 1987.

4.4 Montague Junior High School — Wood Fuelled Heating System

The Corporation installed a Northfab wood boiler installation at the Junior High School in December, 1983. An Agreement is in place to turn the system over to the Unit 4 School Board once the system has been proven. Unfortunately, the unit has not proved reliable and is oversized for the School leading to poor performance. In 1985-86, 85 tonnes of wood chips were used displacing an estimated 17,600 litres of fuel oil. A comprehensive review of the system was undertaken at the end of the heating season with a view to correcting the situation. The possibility of connecting the nearby Senior High School to a modified wood fired system is being considered because the increased load would significantly improve the economics of the system.

4.5 Wood Fuel Supply

In previous years the Corporation has undertaken to organize the supply of the relatively small quantities of wood chip fuel required for its projects such as the wood fuelled boiler at the Kings County Memorial Hospital. Two large projects under construction in 1985-86, the wood boilers at the Prince Edward Home and the University of Prince Edward Island, required a more formal arrangement.

After waiting to determine if the Institutions would themselves arrange their own supply, the Corporation undertook to act as a Broker between potential wood fuel suppliers and Institutions having wood boilers. A contract was made to take 2,000 tons of chipped slabwood from Larsen's sawmill at $25/ton. Jerry Gavin was seconded from the Department of Energy & Forestry to organize a competitive tender for a three-year supply of wood chip fuel for the following sites:

	Estimated Annual Demand (tonnes)
Kings County Memorial Hospital	1,710
Sleepy Hollow Correctional Institute	570
Prince Edward Home	4,140
University of Prince Edward Island	9,060
Beach Grove Home	1,710
	17,190

The estimated quantity of wood chip fuel to be used was 36,500 tonnes over three years. The tenders closed November 18, 1985 with five bids being received. The contract was awarded on December 23, 1985 to the low bidder, Bulk Carriers of Cornwall. The average price for wood chip fuel was $27.27 per tonne. This is equivalent to light fuel oil at 12¢/litre.

The Corporation in turn has contracts with the Institutions to supply wood chip material and charges a small mark-up to cover administration and management costs. Fifty percent of the wood fuel has to be taken from woodlots under the Department of Energy & Forestry's Management Plan.

The Corporation still owns two small wood chippers that are rented out to homeowners, or wood contractors wishing to take on smaller projects. The The Eeger Beever Chipper was rented to John MacDonald of Souris to supply wood chip fuel to the Souris Hospital, for example.

4.6 Special Projects

The Corporation was allocated $400,100 for projects relating to forestry operations on Crown Lands. One hundred and forty-five people were employed on thinning and clearing activities at eleven sites in all three Counties. The project was managed by the Department of Energy & Forestry on behalf of the Corporation and funds were accounted for under the Provincial Financial Information System.

5.0 PROJECTS UNDER DEVELOPMENT

5.1 University of Prince Edward Island Wood Fired Heating System

The Corporation was involved in the feasibility and design of the 400 boiler horse power wood chip boiler at the University. The unit would serve the increased demand of the campus resulting from the construction of the Atlantic Veterinary College. Dr. John te Raa served on the Project Management Committee supervising the construction. Sylva Energy Systems of Thunder Bay, Ontario won the design and supply contract in association with Trent Industrial Contractors of St. John, N.B. Richardson Associates of Charlottetown was awarded the general supervision and electrical design contracts, with Coles Associates of Charlottetown and Peerless Consultants of Moncton responsible for civil structural and miscellaneous mechnical contracts.

The project was brought in on budget. The principal component costs were:

Design, building and installation of the wood boiler	$730,000
Construction of building, electrical installation, and miscellaneous mechanical	750,000
Engineering	100,000
	1,580,000

The system was started up in March, 1986.

5.2 Prince Edward Home

The Corporation constructed, during 1984-85, a 180 boiler horse power wood boiler at the Prince Edward Home to serve both the Home and the Provincial Administration Buildings. The system was commissioned in September 1985.

During the summer of 1985, the hot water line connecting the Prince Edward Home to the Provincial Administration Building was installed. The $297,200 contract was awarded to Steen Contractors with the piping design and contract supervision awarded to CBCL Limited of Charlottetown, in cooperation with AF-Energikonsult of Stockholm, Sweden. The wood fired heat was supplied to the Provincial Buildings in December, 1985. From September 1, 1985 to March 31, 1986 a total of 1,700 tonnes were used, displacing an estimated 374,000 litres of light fuel oil. It was determined later in the year that the fuel cell refractory was defective. The boiler supplier, KMW Inc., agreed to replace this under warranty. On March 18, 1985 the Plant was officially opened by the Minister of Energy & Forestry, the Hon. Frederick L. Driscoll.

5.3 Charlottetown District Heating Study

In April, 1985 the final report on the feasibility of a district heating project in Charlottetown was presented by the consultant, AF-Energikonsult. This comprehensive study included the basic data needed to design such a system. The project envisaged a cogeneration plant located on the waterfront beside Maritime Electric Limited's power plant. A 1200 boiler horsepower wood boiler would use about 35,000 tonnes of wood chip fuel to heat buildings in the downtown core and produce up to 3.5 MW of electric power. The total cost of the project was estimated at $17.2 million. At the time of the study, present oil and electric prices were appearing to be changing, reducing the economic attractiveness of the project. Nevertheless the Consultant identified a pilot project that would enable construction and operating experience to be obtained that would confirm the practicality of the larger project.

5.4 Pilot District Heating Project

It was determined by AF-Energikonsult that a district heating pipeline could be placed alongside Rochford Square and then up Kent Street connecting thirteen buildings including three hotels and City Hall. The addition of the summertime domestic hot water load of the three hotels would enable the wood boiler to be run at a higher load and hence operate more efficiently.

On June 10, 1985 the Board of the Corporation approved the expenditure of funds to design the system with an initial expectation that construction could proceed in the fall of 1985. However in order to get competitive construction bids, it was decided to call competitive tenders for construction in the spring of 1986. Contracts were signed with all customers for a cost of heat that was estimated to be 10% less than their oil fired heat. The tender call for the installation of the piping system and heat exchangers in each building closed on December 16, 1985. The low bidder, D.B.&J. (1971) Ltd., was awarded the pipe installation contract and the heat exchanger installation contract, the combined value of both contracts being $427,073. The estimated cost of the project, including work required in the Prince Edward Home, was $750,000. Energy, Mines & Resources committed a grant of $360,882 towards the project, which should be in operation in the fall of 1986. Because suitable heat exchangers for this type of system are not available in Canada, the Corporation encouraged ELGE Ltd., of Sweden to make arrangements to have the heat exchangers, fabricated by Georgetown Shipyard, using material shipped from Sweden. This enabled local fabrication of a tried and proven product.

6.0 STUDIES IN PROGRESS

6.1 Summerside District Heating

Following the experience gained in completing the study for District Heating in Charlottetown it was recommended that AF-Energikonsult carry out a similar study for the Town of Summerside. The heat load in Summerside is less concentrated than in Charlottetown reducing the economic viability of district heating although there are areas of high heat load, namely the Waterfront Mall and the area around the Prince County Hospital. The existence of the diesel electric plant offered a special opportunity in Summerside. If the plant was run on a continuous basis, the waste heat from the exhaust would be sufficient to heat most of the large and medium sized buildings in Summerside. Discussions were initiated with the Town Council to determine the interest of the Town in this concept.

6.2 Wind Energy Conversion Study

The final report from Resource Ventures Inc., was received on the viability of multi unit wind farms for electrical power production. This study was funded jointly by Energy, Mines and Resources and the Corporation. Due to the fall in oil and electrical prices, the cost for generated power was found to be higher than current supply costs. The report forms a comprehensive analysis from which this option can be reassessed in the future.

June 23, 1986

AUDITORS' REPORT TO THE DIRECTORS

We have examined the balance sheet of Prince Edward Island Energy Corporation as at March 31, 1986 and the statements of revenues, expenditures and surplus — operating and capital for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the corporation as at March 31, 1986 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Coopers & Lybrand
Chartered Accountants

PRINCE EDWARD ISLAND ENERGY CORPORATION
BALANCE SHEET AS AT MARCH 31, 1986
ASSETS

	1986 $	1985 $
CURRENT ASSETS		
Cash	—	17,950
Term deposits	2,725	14,087
Accounts receivable	175,947	202,810
Holdback receivable	27,068	8,864
Accrued interest receivable	264	998
Prepaid expense	—	30,238
Project under development	1,035,229	407,598
	1,241,233	682,545
FIXED ASSETS — at no cost (note 2)	10,079,441	10,079,441
OTHER ASSET		
Mortgage receivable (note 5)	17,000	—
	11,337,674	10,761,986

LIABILITIES

CURRENT LIABILITIES		
Bank advances	838,648	370,000
Accounts payable and accrued liabilities	549,485	493,978
Deferred revenue - projects under development	455,493	88,643
	1,843,626	952,621
LONG-TERM DEBT		
12% debenture payable interest only to 1993 with principal and interest payments commencing in 1993 to amortize the balance	5,500,000	5,500,000
	7,343,626	6,452,621
OPERATING	279,372	250,184
CAPITAL (note 3)	3,714,676	4,059,181
	3,994,048	4,309,365
	11,337,674	10,761,986

SIGNED ON BEHALF OF THE BOARD

Director

Director

PRINCE EDWARD ISLAND ENERGY CORPORATION
STATEMENT OF REVENUES AND EXPENDITURES
— OPERATING AND SURPLUS
FOR THE YEAR ENDED MARCH 31, 1986

	1986 $	1985 $
REVENUES		
Grants		
Province of Prince Edward Island	641,523	628,669
Kings County Memorial Hospital - steam sales	—	29,070
Bunbury Southport Pollution Control Commission	1,839	2,470
Sale of wood	170,356	795
Rent of wood chipper (net)	2,725	—
	816,443	661,004
EXPENDITURES		
Projects — (Schedule)	450,228	398,129
Administration		
Consulting	124,885	118,863
Office furniture	2,215	1,018
Directors' honorarium	22,539	22,395
Travel	9,483	17,391
Office supplies	2,982	987
Miscellaneous	4,668	1,677
Telephone	4,568	4,965
Wages and levies	158,907	125,298
Audit	4,027	3,900
Materials and supplies	2,753	1,673
	337,027	298,167
TOTAL EXPENDITURES	787,255	696,296
EXCESS REVENUES (EXPENDITURES) FOR THE YEAR	29,188	(35,292)
SURPLUS — BEGINNING OF YEAR	250,184	285,476
SURPLUS — END OF YEAR	279,372	250,184

PRINCE EDWARD ISLAND ENERGY CORPORATION
STATEMENT OF REVENUES AND EXPENDITURES
— CAPITAL AND SURPLUS
FOR THE YEAR ENDED MARCH 31, 1986

	1986 $	1985 $
REVENUES		
— Sale of steam and tippage fees	1,320,945	1,138,314
— Interest	6,155	22,018
— Sale of scrap metal	1,890	3,806
	1,328,990	1,164,138
EXPENDITURES		
— Energy from Waste Plant operations		
Interest	724,140	668,803
Property taxes	74,151	70,350
Operations	775,523	733,914
Management	97,380	93,310
Fuel	—	3,902
Miscellaneous	2,301	5,811
	1,673,495	1,576,090
EXCESS EXPENDITURES FOR THE YEAR	344,505	411,952
SURPLUS — BEGINNING OF YEAR	4,059,181	4,471,133
SURPLUS — END OF YEAR	3,714,676	4,059,181

PRINCE EDWARD ISLAND ENERGY CORPORATION
NOTES TO FINANCIAL STATEMENTS
FOR THE YEAR ENDED MARCH 31, 1986

1. ACCOUNTING POLICIES

Fixed Assets

Minor fixed assets are recorded as a cumulative figure which is retired out of grants and revenues and expensed in the statement of revenues and expenditures during the period in which the transaction occurs.

Major fixed assets remaining the property of the Prince Edward Island Energy Corporation are transferred to the fixed asset account from projects under development when such projects are complete and all funds have been received.

The corporation has adopted the policy of depreciating the energy from waste plant in accordance with principal payments on long-term debt. Since the debt is not scheduled to be reduced until 1993 the depreciation of the energy from waste plant will not commence until that time.

2. FIXED ASSETS

	Cost			
	March 31 1985 $	Additions $	Rebates $	March 31 1986 $
Waste burning plant ...	10,079,441	—	—	10,079,441
Furniture and fixtures ..	2,195	2,215	—	4,410
	10,081,636	2,215	—	10,083,851
Less: Retirement of grants	2,195	2,215	—	4,410
	10,079,441	—	—	10,079,441

3. **CAPITAL SURPLUS**

The corporation has adopted the policy of capitalizing those funds received in financial support of the Waste Burning Plant. The surplus will be amortized to income in accordance with the depreciation policy.

4. **DEFERRED REVENUE — PROJECTS UNDER DEVELOPMENT**

The corporation has received incentives amounting to $455,493 for projects currently under development. Once the projects have been completed, the corporation will capitalize these funds to surplus and amortize the surplus to income on the same basis that depreciation is recorded to the projects.

5. **MORTGAGE RECEIVABLE**

The corporation holds a 13% second mortgage on a wood fired boiler due July 1, 1991, with interest only payable on July 1, 1986 and 1987 and 1/3 of the principal plus interest due on July 1, for each of the next three years.

PRINCE EDWARD ISLAND ENERGY CORPORATION
SCHEDULE OF PROJECT COSTS
FOR THE YEAR ENDED MARCH 31, 1986

	1986	1985
	$	$
Renewable energy initiatives	189,175	184,769
District Heating Studies	75,080	128,226
Montague hospital wood chip burning unit		
— capital	2,500	25,366
— operations	—	24,430
Wood chippers	—	12,949
Vehicle emission testing	—	7,759
Wood fuel use survey	—	6,500
Cavendish Farms — Cogeneration	—	5,537
Montague Junior High School		
— wood chip burning unit	3,365	2,593
Wood purchased for resale	180,108	—
	450,228	398,129

ACKNOWLEDGEMENT

The Corporation acknowledges with thanks the contributions made by individuals and organizations within the federal and provincial governments and the private sector which have contributed substantially to activities of the Corporation. Without these donated contributions of expertise, criticism and advise the Corporation's activities would have been seriously impaired.